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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/827,462      | 04/06/2001  | Volker Deflinger     | H60-076 DIV         | 7915             |

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[REDACTED] EXAMINER

MARKHAM, WESLEY D

[REDACTED] ART UNIT      [REDACTED] PAPER NUMBER

1762

6

DATE MAILED: 07/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                              |                   |
|------------------------------|------------------------------|-------------------|
| <b>Office Action Summary</b> | Application No.              | Applicant(s)      |
|                              | 09/827,462                   | DERFLINGER ET AL. |
|                              | Examiner<br>Wesley D Markham | Art Unit<br>1762  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 24 April 2002.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 39-56 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 39-56 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 06 April 2001 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. 09/253,212.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other _____                                     |

## **DETAILED ACTION**

Acknowledgement is made of applicant's amendment B, filed as paper #4 on April 24, 2002, in which a substitute specification was filed, Claims 19 – 38 were canceled, and Claims 39 – 56 were added. Claims 39 – 56 are currently pending in U.S. Application Serial No. 09/827,462, and an Office Action on the merits follows.

### ***Drawings***

1. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

### ***Specification***

2. The substitute specification filed on 4/24/2002 with paper #4 is acknowledged and has been entered. In light of this substitute specification, the objections to the specification, set forth in paragraphs 2 – 3 of the previous Office Action, are withdrawn.
3. The disclosure is objected to because of the following informalities: The disclosure lacks headings / sections such as "Brief Description of the Drawings" and "Detailed Description of the Preferred Embodiments". The examiner notes that it appears that a portion of the specification – specifically page 10 - (i.e., the portion having the "Brief Description of the Drawings" heading and section and the "Detailed Description of the Preferred Embodiments" heading) has been omitted in the

substitute specification filed on 4/24/2002. See pages 10 – 11 of the marked-up copy of the substitute specification. Appropriate correction is required.

***Claim Objections***

4. The objection to Claims 19, 37, and 38, set forth in paragraph 4 of the previous Office Action, is withdrawn in light of applicant's B, in which the claims were canceled.
5. Claims 39, 55, and 56 are objected to because of the following informalities:
  - Claim 39 – Line 5 of the claim contains a typographical error. Specifically, the word "harness" should be amended to read "hardness".
  - Claim 55 – The phrase, "... content of said at least two metal element which is..." in lines 2 – 3 of the claim is improper grammar. The applicant is suggested to amend the phrase to read, "... content of said at least two metal elements which is..."
  - Claim 56 – The phrase, "... hard material coating to be from the content of said Al..." in line 9 of the claim appears to contain a typographical error. The applicant is suggested to amend the phrase to read, "... hard material coating to be different from the content of said Al..."

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. The rejection of Claims 19 – 38 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, set forth in paragraphs 6 – 15 of the previous Office Action, is withdrawn in light of applicant's amendment B, in which Claims 19 – 38 were canceled.
8. Claims 39 – 56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. Regarding independent Claim 39 (from which Claims 40 – 56 depend) and Claims 55 – 56, the limitations "...having a coating that fulfills a requirement of high adhesive strength of the coating to a higher degree than a requirement of hardness of the coating...", "...having a coating that fulfills a requirement of high hardness of the coating to a higher degree than a requirement of high adhesive strength of the coating...", "...which fulfills the requirement of high adhesive strength of the first hard material coating to a higher degree than a requirement of hardness of said first hard material coating...", "...which fulfills the requirement of high hardness of said first hard material coating to a higher degree than a requirement of high adhesive strength of said first hard material coating..." in Claim 39 and the corresponding similarly worded limitations in Claims 55 – 56 render the claims vague and indefinite. Specifically, it is unclear what is meant by "requirements" in the claims.

Who sets / decides the requirements? What are the requirements? On what basis is a requirement for "high hardness" compared to a requirement for "high adhesive strength"? What tools have each requirement? It appears to the examiner that this claim limitation is subjective and would depend on who is setting the "requirements".

10. The terms "larger cross-sectional area", "lower cutting rate", "smaller cross-sectional area", and "larger cutting rate" in Claim 47 are relative terms which render the claim indefinite. The terms are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Specifically, it is unclear what range of cross-sectional areas are "larger" and what range are "smaller". It is also unclear what range of cutting rates are "lower" and what range are "larger". Further, who makes this determination?
11. Claim 56 recites the limitation "said base body" in line 14 of the claim. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in the previous Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. The rejection of Claims 19 – 21, 27, 32 – 33, 36, and 38 under 35 U.S.C. 102(b) as being anticipated by Leyendecker et al. (USPN 5,272,014), set forth in paragraphs 17 – 19 of the previous Office Action, is withdrawn in light of applicant's amendment B, in which the aforementioned claims were canceled.

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. The claim rejections under 35 U.S.C. 103(a), set forth in paragraphs 21 – 35 of the previous Office Action, are withdrawn in light of applicant's amendment B, in which the previously presented claims were canceled.

17. Claims 39 – 42, 45, and 47 – 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leyendecker et al. (USPN 5,272,014).
18. Regarding independent Claim 39, Leyendecker et al. teach a method for producing a plurality of cutting tools by applying hard material coatings for enclosing each of the tools (Col.2, lines 61 – 66 and Example 1), the method comprising the steps of, for each of the tools, providing on a first region of the tool body that contains at least one first cutting edge, a first hard material coating by means of a plasma vacuum coating process; providing on a second region of the tool body that is adjacent to said first region, a second hard material coating by means of a plasma vacuum coating process (Abstract, Example 1, Figures 1 – 2, and Col.3, lines 6 – 26); selecting as hard material for the first and second hard material coatings, a material selected from the group consisting of carbides, oxides, oxycarbides, nitrides, nitrocarbides, oxinitrides, and nitrooxicarbides of at least two of the metal elements Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, and Al (Col.1, lines 50 – 54, Col.3, lines 45 – 58, and Example 1); coating one cutting tool (i.e., a drill) with a (Ti,Al)N coating that is homogeneous in both the first region of the tool body (i.e., the edge region) and the second region of the tool body (i.e., the region away from the edges) (Col.4, lines 45 – 51), and coating a second cutting tool (i.e., a drill) with a (Ti,Al)N coating that is inhomogeneous when comparing the first region of the tool body (i.e., the edge region) and the second region of the tool body (i.e., the region away from the edges) (Example 1). The inhomogeneous coating of Leyendecker et al. has a content of the at least two metal elements in the edge region (i.e., the first hard

material coating) different from the content of the two metal elements in the second region (i.e., the second hard material coating) by more than 2at% (Abstract and Figures 1 – 2), as required by the applicant's claims. Leyendecker et al. do not explicitly teach that the "homogeneous" coating of Example 1 is equivalent to a coating wherein the first hard material coating (i.e., the coating in the edge region or the tool) has a content of the at least two metal elements of at most 2 at% different from the content of the metal elements in the second hard material coating (i.e., the coating in the region away from the edges). However, Leyendecker et al. teach that a coating which is not homogeneous has a concentration difference of at least about 2 at% (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art to choose appropriate deposition parameters to obtain a coating which has a concentration difference of at most 2 at% in the comparative example of Example 1 (i.e., the homogeneous coating on the drill) with the reasonable expectation that, if the concentration difference was more than 2 at%, the coating would be considered by Leyendecker et al. to be not homogeneous. This situation (i.e., the situation wherein the concentration difference is more than 2 at%) would have defeated the purpose of the comparative example of Example 1. Further, Leyendecker et al. do not explicitly teach that (1) the "homogeneous" coating of Example 1 (i.e., the comparative example) fulfills the requirement of high adhesive strength of the coating to a higher degree than the requirement of hardness of the coating and (2) that the "inhomogeneous" coating of their invention fulfills the requirement of high hardness of the coating to a higher degree than the requirement

of high adhesive strength of the coating. However, as set forth in the discussion above, the two coatings ("homogeneous" and "inhomogeneous") taught by Leyendecker et al. are equivalent to the two coatings claimed by the applicant. Thus, as the coatings of Leyendecker et al. and the claims are equivalent, their properties would also be equivalent, and therefore the "homogeneous" coating of Leyendecker et al. must inherently fulfill the requirement of high adhesive strength of the coating to a higher degree than the requirement of hardness of the coating, and the "inhomogeneous" coating of Leyendecker et al. must inherently fulfill the requirement of high hardness of the coating to a higher degree than the requirement of high adhesive strength of the coating. Please note that the mere observation of still another beneficial result in an old process cannot form the basis of patentability (*Allen et al. V Coe*, 57 USPQ 136).

19. Leyendecker et al. also teach / suggest all the limitations of Claims 40 – 42, 45, and 47 – 56 as set forth above in paragraph 18 and below, including a method wherein / further comprising:

- Claim 40 – Depositing at least as a part of the hard material coatings a (Ti,Al)N coating on the tool body (Col.3, lines 48 – 58, and Example 1).
- Claim 41 – Providing an intermediate layer between the tool body and the hard material coatings (Col.4, lines 7 – 19).
- Claim 42 – The hard material coatings are deposited by arc evaporation. Specifically, Leyendecker et al. teach the embodiment of coating the tools using a target sputtering method in general without explicitly teaching arc

evaporation (Example 1). Leyendecker et al. also teach that electric arc evaporation is a specific type of target sputtering method that is used to deposit hard films on tools (Col.1, lines 28 – 36). Therefore, it would have been obvious to one of ordinary skill in the art to use arc evaporation as the target sputtering method in the process of Leyendecker et al. with the reasonable expectation of success (i.e., successfully using a given species of the genus of target sputtering methods taught by Leyendecker et al.).

- Claim 45 – The first hard material coating has a content of the at least two metal elements at most 2 at% different from the content of the metal elements in the second hard material coating for tool bodies of drills, roughing milling cutters, peripheral milling cutters, tools for hobbing machines, or turning tools. Specifically, Leyendecker et al. teach coating a drill with a “homogeneous” (Ti,Al)N coating (comparative example in Example 1) (see paragraph 18 above).
- Claim 47 – See paragraph 18 above. Specifically, Leyendecker et al. teach coating drills with both homogeneous and inhomogeneous coatings (Example 1). The statements that the tools are “for cutting with a larger cross-sectional area of the cut at a lower cutting rate” and “for cutting with smaller cross-sectional area of the cut at a larger cutting rate” are simply statements of intended use and are not read into the claim. In addition, as the method / coating(s) of Leyendecker et al. are the same as the method

/ coating(s) claimed by the applicant, the cutting tools of Leyendecker et al. would have been capable of either "cutting with a larger cross-sectional area of the cut at a lower cutting rate" or "cutting with smaller cross-sectional area of the cut at a larger cutting rate" as claimed by the applicant. Please note that Leyendecker et al. teach that both methods of coating tool components claimed by the applicant (i.e., the "homogeneous coating" and the "inhomogeneous coating" having a different composition at the edge of the tool than elsewhere on the tool body) were known in the art at the time of the applicant's invention (whole document). Leyendecker et al. also teach both methods have advantages and disadvantages (Col.3, lines 28 – 40). It would have been obvious to one of ordinary skill in the art to utilize either known prior art method of coating cutting tools with the reasonable expectation of (1) success, as Leyendecker et al. teach that both methods can be successfully performed, and (2) obtaining the benefits of using one method over the other. The choice of which method to use (i.e., "homogeneous" or "inhomogeneous") would depend on which advantages the purveyor in the art deemed more important in each particular situation. The mere observation of still another beneficial result in an old process cannot form the basis of patentability (*Allen et al. V Coe*, 57 USPQ 136).

- Claim 48 - The step of applying the first hard material coating to have a content of the at least two metal elements to be different from the content

of the at least two metal elements in the second hard material coating by at most 2 at% for tool bodies for cutting workpiece material having a hardness of up to at most 45 Rockwell and a tensile strength of up to at most 1500 N/mm<sup>2</sup>. Specifically, Leyendecker et al. teach coating a drill with a homogeneous (Ti,Al)N coating (Example 1). One of ordinary skill in the art would have coated the drill with a coating having a concentration difference of at most 2 at% in order to achieve the homogeneous coating of Leyendecker et al. for the reasons set forth in paragraph 18 above. The statement that the coating is “for tool bodies for cutting workpiece material having a hardness of up to at most 45 Rockwell and a tensile strength of up to at most 1500 N/mm<sup>2</sup>” is simply a statement of intended use. As the drill of Leyendecker et al. is coated using the method / coating claimed by the applicant, the drill of Leyendecker et al. having the “homogeneous” coating would have been capable of performing the claimed function.

- Claim 49 - The tool bodies are tools for working quenched steels, highly alloyed steels, stainless steels, or non-ferrous metals. However, simply stating that the tool bodies are tools for working quenched steels, highly alloyed steels, stainless steels, or non-ferrous metals is a statement of intended use and is not read into the claim. In addition, as the drill of Leyendecker et al. is coated using the method / coating claimed by the applicant, the drill of Leyendecker et al. having the “homogeneous” coating would have been capable of performing the claimed function.

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- Claims 50 – 51 – Leyendecker et al. teach coating a drill with a homogeneous (Ti,Al)N coating (Example 1). One of ordinary skill in the art would have coated the drill with a coating having a concentration difference of at most 2 at% in order to achieve the homogeneous coating of Leyendecker et al. for the reasons set forth in paragraph 18 above. In addition, the limitations that the cutting edge of the tool is being loaded simultaneously with different cutting speeds relative to a worked workpiece (Claim 50), and that the minimum cutting speed occurs at a tip of the drill and significantly higher cutting speed occurs at a circumference of the drill (Claim 51) appear to be limitations which are met by any generic drill. As such, the homogeneously coated drill of Leyendecker et al. meets these limitations. However, if not all drills meet these limitations, it would have been obvious to one of ordinary skill in the art to coat the drills that do meet the aforementioned limitations with the reasonable expectation of success, as Leyendecker et al. teach the coating of drills in general, which would have been expected to encompass a specific species (i.e., type) of drill.
- Claim 52 - The step of applying the first hard material coating to have a content of at least two of the metal elements to be different from the content of the at least two metal elements in the second hard material by more than 2at% for tool bodies for cutting workpiece materials having a hardness of more than 45 Rockwell and a tensile strength of more than

1500 N/mm<sup>2</sup>. Specifically, Leyendecker et al. teach that cutting tools are coated by their process (Col.2, lines 61 – 68, and Col.3, lines 1 – 10).

Simply stating that the tools are for cutting a specific type of workpiece material is a statement of intended use and is not read into the claim. In addition, as the method / coating of Leyendecker et al. is the same as the method / coating claimed by the applicant, the cutting tools of Leyendecker et al. would have been capable of cutting the materials claimed by the applicant.

- Claim 53 - The tool body is a tool for hard chipping. Specifically, Leyendecker et al. teach that tools such as milling tools, punches, and drills are coated by their process (Col.2, lines 61 – 68, and Col.3, lines 1 – 10). Simply stating that the tools are for “hard chipping” is a statement of intended use and is not read into the claim. In addition, as the method / coating of Leyendecker et al. is the same as the method / coating claimed by the applicant, the tools of Leyendecker et al. would have been capable of “hard chipping” as claimed by the applicant.
- Claim 54 – The first and second hard material coatings comprise at least one (Ti,Al)N layer (Figures 1 – 2, Col.3, lines 48 – 58, and Example 1).
- Claim 55 – See paragraph 27 of the previous Office Action.
- Claim 56 – See paragraph 18 above and paragraph 27 of the previous Office Action.

20. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leyendecker et al. (USPN 5,272,014) in view of Hofmann et al. (USPN 5,330,853).

21. Leyendecker et al. teach all the limitations of Claim 43 as set forth in paragraph 18 above, except for a method further comprising the step of forming the coating having a composition difference of at most 2 at% by establishing a specific claimed ratio of substrate bias voltage to partial pressure of the reactive gas during the vacuum coating process. However, Leyendecker et al. do teach coating a drill with a homogeneous (Ti,Al)N coating (Example 1). One of ordinary skill in the art would have coated the drill with a coating having a concentration difference of at most 2 at% in order to achieve the homogeneous coating of Leyendecker et al. for the reasons set forth in paragraph 18 above. Leyendecker et al. also teach that, traditionally, coating process conditions were adjusted in order to form a homogeneous coating which was believed to afford superior performance (Col.1, lines 59 – 63), and that known coating techniques utilize a weak electric field to prevent inhomogeneity at the edges of the substrate (Col.2, lines 16 – 20). Hofmann et al. teach that, in the field of depositing protective (Ti,Al)N coatings on tool bodies, the partial pressure of the reactive gas (i.e., nitrogen) and the substrate bias voltage are particularly influential deposition parameters (i.e., they are result / effective variables) (Col.1, lines 33 – 47). Therefore, it would have been obvious to one of ordinary skill in the art to optimize the result / effective variables of partial pressure of the reactive gas (i.e., nitrogen) and the substrate bias voltage through routine experimentation. By optimizing both variables, the ratio of the variables would have

inherently been optimized as well. The specific ranges of the substrate bias voltage and the partial pressure of the reactive gas would depend on whether the purveyor in the art desired a uniform coating or a coating having a composition difference at the edge of the tool. Both embodiments are taught by Leyendecker et al. in Example 1.

22. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leyendecker et al. (USPN 5,272,014) in view of Hofmann et al. (USPN 5,330,853), and in further view of Munz et al. (USPN 4,426,267).
23. The combination of Leyendecker et al. and Hofmann et al. teach all the limitations of Claim 44 as set forth in paragraphs 18 and 21 above, except a method which includes selecting ground potential as the electric reference potential. Leyendecker et al. and Hofmann et al. are silent in regards to this point, but both teach utilizing a bias voltage. However, Munz et al. teach that, in the field of sputter coating a substrate, it is known to choose a substrate bias voltage with respect to ground (Col.3, lines 32 – 39, Col.4, lines 40 – 42). Therefore, it would have been obvious to one of ordinary skill in the art to do so with the reasonable expectation of success.
24. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leyendecker et al. (USPN 5,272,014) in view of Breuer et al. (USPN 5,125,775).
25. Leyendecker et al. teach all the limitations of Claim 46 as set forth in paragraph 18 above, except a method wherein the coating having a composition difference of

more than 2 at% between the first hard material coating and the second hard material coating is deposited on tool bodies of front-end milling cutters or ball-end milling cutters. However, Leyendecker et al. teach that the inhomogeneous coating (i.e., the coating wherein the first hard material coating has a content of at least two of the metal elements to be different from the content of the two metal elements of the second hard material by more than 2at%) is useful when coating cutting tools, milling tools, shaping tools, punches, drills, and similar apparatuses (Col.2, lines 61 – 68, and Col.3, lines 1 – 10). Regarding Claim 46, Breuer et al. teach that ball-end milling cutters were known at the time of the applicant's invention (Col.1). It would have been obvious to one of ordinary skill in the art to coat the ball-end milling cutters of Breuer et al. with the coating method / composition of Leyendecker et al. with the reasonable expectation of (1) success, as Leyendecker et al. teach that cutting tools and milling tools in general are coated by their invention, and (2) obtaining the wear-resistance benefits of the coating of Leyendecker et al. on the specific cutting tools taught by Breuer et al.

### ***Response to Arguments***

26. Applicant's arguments filed on 4/24/2002 have been fully considered but they are not persuasive.
27. The applicant argues that Leyendecker et al. has absolutely no teaching as to which type of tool should be treated in which way with a view toward maximizing that tool's life and usefulness for a particular type of service condition. In addition, the

applicant argues that there is no teaching that the skilled artisan should look at the adhesive/hardness attributes of a hard material layer and maximize one or the other depending on what type of cutting is to be performed by the tool. Further, the applicant argues that there is no teaching that adjusting the relative amounts of each attribute (adhesiveness on one hand and hardness on the other) can be changed by either changing the concentration of one element to the other or keeping the concentration the same between the active edge area of the tool and other points on the tool. In response, Leyendecker et al. coat cutting tools (i.e., drills) using both of the applicant's claimed methods (see Example 1). The applicant's discovery that one of the classes of coatings meets a "requirement of higher hardness" while the other meets a "requirement of higher adhesion" is simply an observation of still another beneficial result of an old process and cannot form the basis of patentability (*Allen et al. V Coe*, 57 USPQ 136). Briefly, Leyendecker et al. teach that both methods of coating tool components claimed by the applicant (i.e., the "homogeneous coating" and the "inhomogeneous coating" having a different composition at the edge of the tool than elsewhere on the tool body) were known in the art at the time of the applicant's invention (whole document). Leyendecker et al. also teach both methods have advantages and disadvantages (Col.3, lines 28 – 40). Simply choosing which type/class of tools to coat with which type of coating is not patentable.

***Conclusion***

28. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
29. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.
31. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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32. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

WDM  
Wesley D Markham  
Examiner  
Art Unit 1762

WDM

WDM  
July 12, 2002

  
SHRIVE P. BECK  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700